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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/528,706	11/08/2005	Patrick Beguery	266484US6XPCT	2039
22850	7590	02/06/2009	EXAMINER	
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			ESSEX, STEPHAN J	
			ART UNIT	PAPER NUMBER
			4111	
			NOTIFICATION DATE	DELIVERY MODE
			02/06/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/528,706	Applicant(s) BEGUERY ET AL.	
	Examiner STEPHAN ESSEX	Art Unit 4111	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10-18 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 10-18 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 March 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>3/22/2005</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Information Disclosure Statement

The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Drawings

The drawings are objected to because the flow diagram contains "O"s for "Oui" and should be replaced with "Y"s for "Yes". Furthermore, it is recommended that the variable subscripts be changed to their English language equivalents with corresponding changes in the descriptions of the drawings. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each

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drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 10 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 10, at line 1 recites "an electric energy recovery system." This language indicates an apparatus claim.

Claim 10, at line 7 recites "the method comprising." This language indicates a method claim.

A single claim which claims both an apparatus and the method steps of using the apparatus is considered to be indefinite (see MPEP § 2173.05(p)).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 10, 13, 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi (U.S. Pub. No. 2001/0008718A1) in view of Jungreis (U.S. Pub. No. 2003/0113595A1).

Regarding claim 10, Kobayashi teaches an electric energy recovery system in a motor vehicle (electric vehicle EV), containing a fuel cell (31) that feeds the electric motor (11) and electrical equipment and is supplied with fuel of hydrogen (hydrogen-rich gas), by a reformer (333), a fuel flow of which is controlled in accordance with electricity consumption of the electric motor, and which temporarily produces excess fuel when

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the consumption of the electric motor diminishes, and containing an energy storage (secondary battery 21), and a method comprising:

a) a balance during which a potential electric power that fuel cell is capable of instantaneously supplying is calculated in accordance with the fuel flow produced by the reformer (reformer 333) (see paragraphs 30, 40, figure 1).

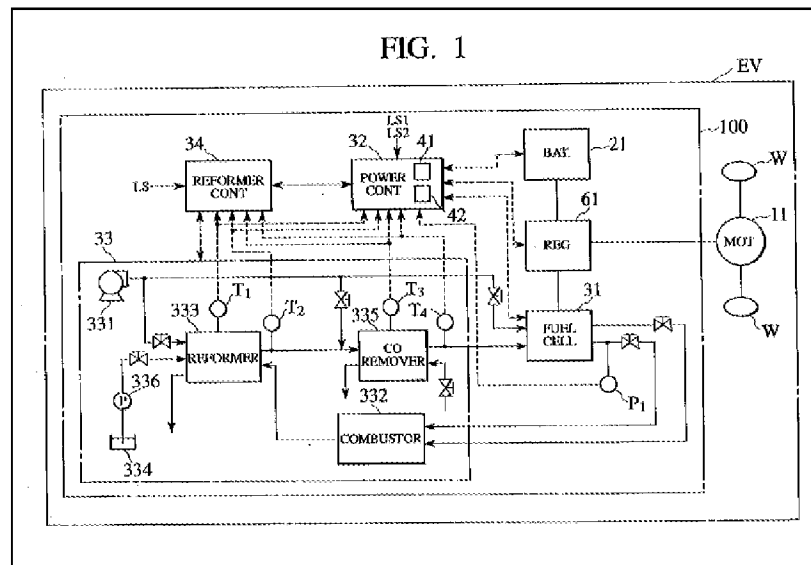
c) determining electric energy storage capacity of energy storage which is released when the excess electric power is strictly positive (see paragraph 17).

d) a storing activated when the instantaneous storage capacity is higher than or equal to the excess electric power, during which the fuel cell is supplied by all of the excess fuel and during which the excess electric power is stored in the energy storage (see paragraph 61).

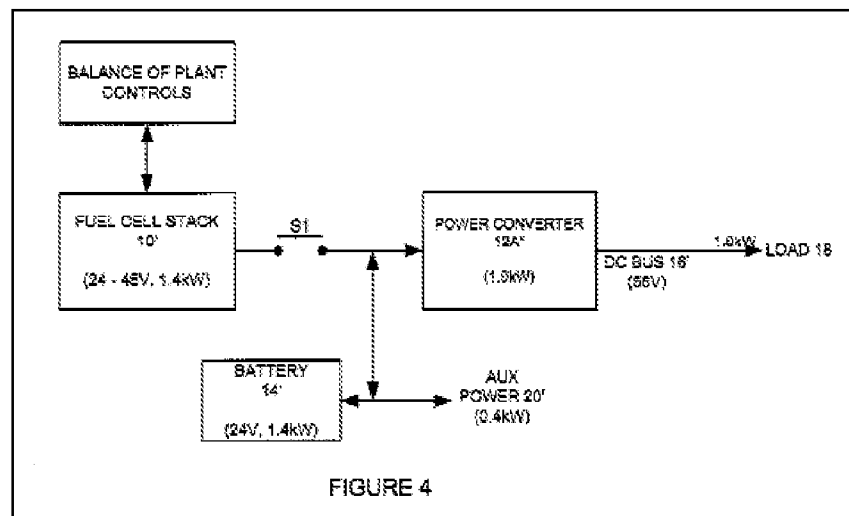
e) distributing the excess fuel, which is activated when the storage capacity is less than the excess electric power, during which the fuel cell is supplied with a portion of the excess fuel sufficient to reconstitute energy stocks of the energy storage (see paragraphs 62 and 63).

Kobayashi does not disclose the estimation of the electric power instantaneously consumed by the electric motor and by the equipment.

Kobayashi does not disclose calculating excess electric power which is the result of a difference between the potential electric power and a sum of the estimated electric powers consumed.



Jungreis teaches that is known in the art to calculate excess electric power as the difference between potential electric power and the sum of electric powers consumed (load 18) (see paragraph 16, figure 4). It is therefore implied there are means for estimating the sum of electric powers consumed.



Consequently, as shown by Jungreis, a person of ordinary skill in the art would have recognized that modifying the energy recovery method of Kobayashi with the excess power calculation and power consumption estimation steps of Jungreis by

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incorporating these steps prior to determining the electric storage capacity of the energy storage would have provided the predictable result of determining the amount of excess electrical power. This modification would decrease processing time by way of fewer calculation steps. The combination of familiar elements is likely to be obvious when it does no more than yield predictable results. See *KSR Int'l v. Teleflex Inc.*, 127 Sup. Ct. 1727, 1742, 82 USPQ2d 1385, 1397 (2007) (see MPEP § 2143). All the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art.

Regarding claim 13, Kobayashi teaches that the remaining portion of excess fuel is burned off (combustor 332) (see paragraph 34, figure 1 above).

Regarding claim 15, Kobayashi teaches the use of electric batteries (secondary battery 21) for energy storage (see paragraphs 14 and 26, figure 1 above).

Claims 11, 12 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi (U.S. Pub. No. 2001/0008718A1) and Jungreis (U.S. Pub. No. 2003/0113595A1) as applied to claim 10 above, and further in view of Seto (W.O. Pub. No. 94/21481).

Regarding claim 11, Kobayashi and Jungreis do not disclose a method for recuperation braking activated when the electric power consumed by the motor is nil, the electric motor being capable of operating as an electric current generator, and

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during which the electric power capable of being produced by the electric motor is estimated and then added to the excess electric power.

Seto teaches a method for recuperation braking (regenerative brake means) activated when the electric power consumed by the motor is nil (when decelerating the vehicle), the electric motor being capable of operating as a generator, and during which the electric power capable of being produced by the electric motor (regenerative electrical energy) is estimated and then added to the excess electric power (excess regenerative electrical energy) (see col. 4, lines 21-37).

The combination of familiar elements is likely to be obvious when it does no more than yield predictable results. See *KSR Int'l v. Teleflex Inc.*, 127 Sup. Ct. 1727, 1742, 82 USPQ2d 1385, 1397 (2007) (see MPEP § 2143). Therefore, it would have been obvious to one having ordinary skill in the art to have modified the energy recovery method of Kobayashi and Jungreis with the recuperation braking method of Seto in order to recover energy to be used by other systems in an electric vehicle, such as an air conditioner. All the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art.

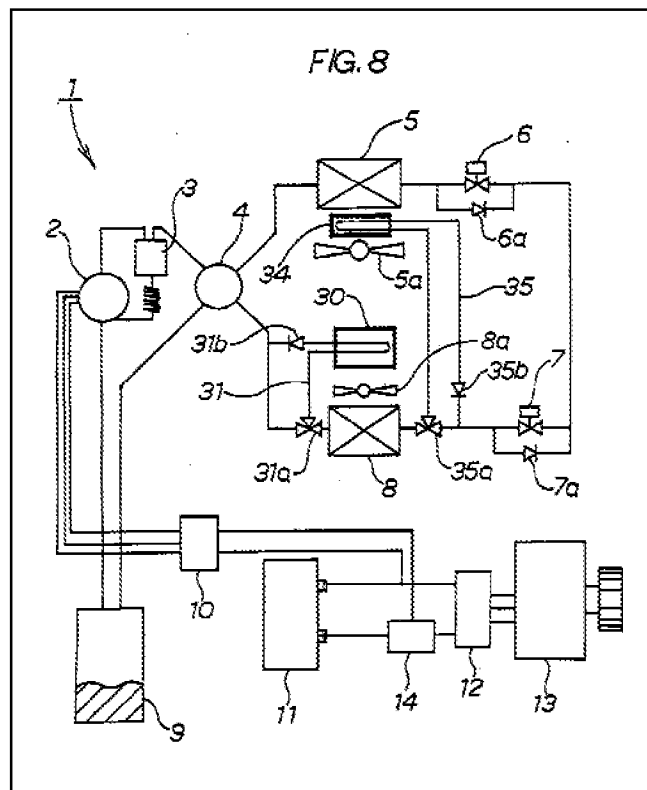
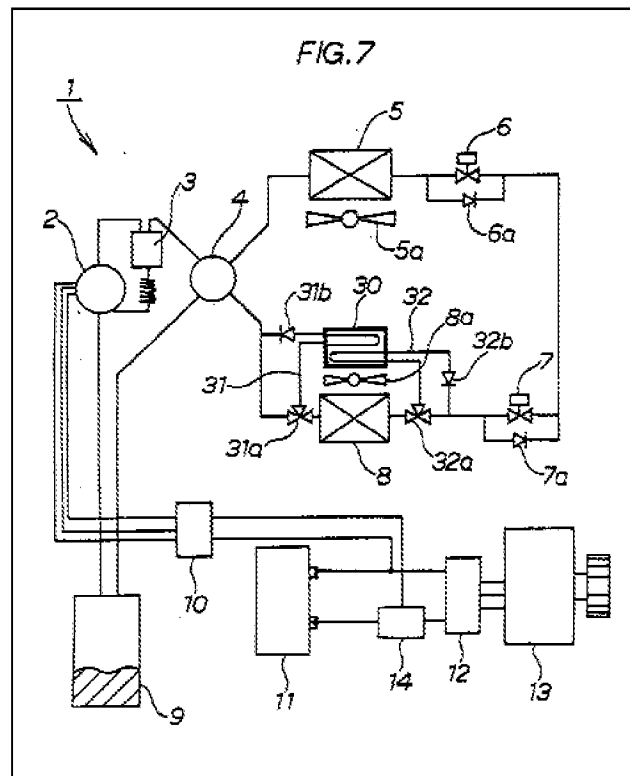
Regarding claim 12, Kobayashi, Jungreis and Seto do not disclose that the electric power produced by the electric motor is stored in the energy storage in priority over the excess power produced by the fuel cell.

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When there is a motivation to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to anticipated success, it is likely the product not of innovation, but of ordinary skill and common sense. See *KSR Int'l v. Teleflex Inc.*, 127 Sup. Ct. 1727, 1742, 82 USPQ2d 1385, 1397 (2007) (see MPEP § 2143). Given two sources of electric power to be stored (electric power from the motor produced during recuperation braking, and excess electric power produced the fuel cell), and a limited storage capacity, one source of electric power must be stored in priority over the other. Therefore it would have been obvious to one of ordinary skill in the art to try storing the electric power produced by the electric motor in priority over the excess power produced by the fuel cell.

Regarding claim 16, Kobayashi and Jungreis do not disclose energy storage in the form of a heat accumulator in which the excess electric power is stored in a form of heat energy by a compression cooling system.

Seto teaches energy storage in the form of a heat accumulator (heat accumulating means 30, 34) in which the excess electric power (excess regenerative power) is stored in a form of heat energy by a compression cooling system (compressor 2) (see abstract, col. 5, lines 55-58, col. 6, lines 1-8, figures 7 and 8).



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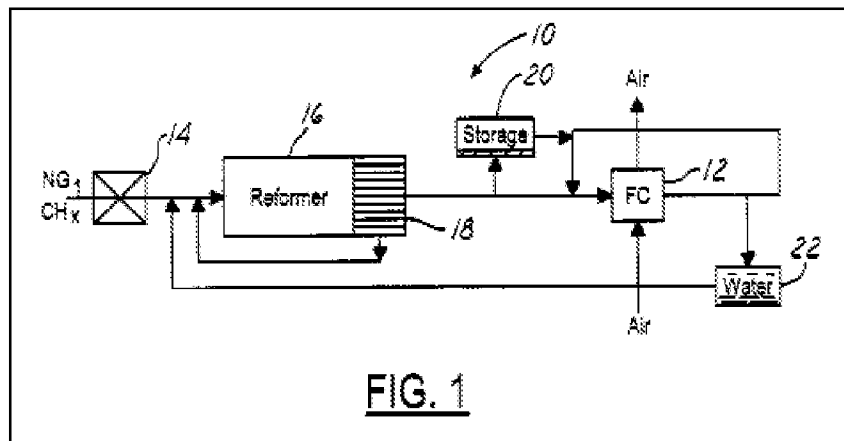
The combination of familiar elements is likely to be obvious when it does no more than yield predictable results. See *KSR Int'l v. Teleflex Inc.*, 127 Sup. Ct. 1727, 1742, 82 USPQ2d 1385, 1397 (2007) (see MPEP § 2143). Therefore, it would have been obvious to one having ordinary skill in the art to have modified the energy recovery method of Kobayashi and Jungreis with the energy storage method of Seto in order to store excess energy for use in an electric vehicle's air conditioner. All the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi (U.S. Pub. No. 2001/0008718A1) and Jungreis (U.S. Pub. No. 2003/0113595A1) as applied to claim 10 above, and further in view of Singh et al. (hereinafter "Singh") (U.S. Pat. No. 6,376,116).

Regarding claim 14, Kobayashi and Jungreis do not disclose that a remaining portion of the excess fuel is stored in a tank.

Singh teaches the storing of excess fuel in a tank (storage container 20) (see col. 2, lines 48-53, figure 1).

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The combination of familiar elements is likely to be obvious when it does no more than yield predictable results. See *KSR Int'l v. Teleflex Inc.*, 127 Sup. Ct. 1727, 1742, 82 USPQ2d 1385, 1397 (2007) (see MPEP § 2143). Therefore, it would have been obvious to one having ordinary skill in the art to have modified the energy recovery method of Kobayashi and Jungreis with the storage tank of Singh in order to be able to supply the fuel cell with excess fuel when the reformer is unable to meet the load demand. All the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art.

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi (U.S. Pub. No. 2001/0008718A1) and Jungreis (U.S. Pub. No. 2003/0113595A1) as applied to claim 10 above, and further in view of Yakes et al. (hereinafter "Yakes") (U.S. Pat. No. 6,885,920).

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Regarding claim 17, Kobayashi and Jungreis do not disclose energy storage in the form of a fluid container in which the energy is stored in a form of mechanical energy by a pump that modifies fluid pressure.

Yakes teaches that is known in the art to store excess electricity in the form of a fluid container in which the energy is stored in a form of mechanical energy by a pump that modifies fluid pressure (pressure accumulators) (see col. 1, lines 42-47, col. 52, lines 7-13).

The combination of familiar elements is likely to be obvious when it does no more than yield predictable results. See *KSR Int'l v. Teleflex Inc.*, 127 Sup. Ct. 1727, 1742, 82 USPQ2d 1385, 1397 (2007) (see MPEP § 2143). Therefore, it would have been obvious to one having ordinary skill in the art to have modified the energy recovery method of Kobayashi and Jungreis with energy storage method of Yakes so as to be able to supply power above and beyond that of the fuel cell. All the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art.

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi (U.S. Pub. No. 2001/0008718A1) and further in view of Seto (W.O. Pub. No. 94/21481).

Regarding claim 18, Kobayashi teaches an electric energy recovery system in a motor vehicle (electric vehicle EV) driven by at least one electric motor, comprising a fuel cell (31) that feeds the electric motor (11) and electrical equipment and is supplied

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with fuel hydrogen (hydrogen-rich gas), by a reformer (333), a fuel flow of which is controlled in accordance with electricity consumption of the electric motor, and which temporarily produces excess fuel when the consumption of the electric motor diminishes, and containing an energy storage (secondary battery 21), the system regulating energy supplied by the fuel cell with aid of surplus reformat produced by the reformer (see paragraphs 14, 26, 30, 32, 61, 62, 63, figure 1 shown above).

Kobayashi does not disclose regulating the excess recovered energy produced by the motor.

Seto teaches regulating the amount of excess recovered energy produced by the motor (see col. 4, lines 19-37).

The combination of familiar elements is likely to be obvious when it does no more than yield predictable results. See *KSR Int'l v. Teleflex Inc.*, 127 Sup. Ct. 1727, 1742, 82 USPQ2d 1385, 1397 (2007) (see MPEP § 2143). Therefore, it would have been obvious to one having ordinary skill in the art to have modified the electric energy recovery system of Kobayashi with the energy regulation system of Seto in order to determine the amount of excess electric energy produced by the motor. All the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEPHAN ESSEX whose telephone number is (571) 270-7866. The examiner can normally be reached on Monday - Friday, 7:30-5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sines can be reached on (571) 272-1263. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SJE

/Brian J. Sines/
Supervisory Patent Examiner, Art Unit 4111